To: Robert Vaughn[Robert.Vaughn@tradebe.com]; Brian Bodnar[Brian.Bodnar@tradebe.com]

Cc: Tita LaGrimas[Tita.LaGrimas@tradebe.com]; sergio.nusimovich@tradebe.com[sergio.nusimovich@tradebe.com]; Lee,

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From: Valentino, Michael

**Sent:** Wed 4/19/2017 9:16:30 PM

Subject: Flare vent gas

Bob and Brian,

The AnSol flare gas composition shows (average of four runs) CO at 9.97% by volume and CO2 at 5.79% by volume.

This tells me that there is some (very limited) complete combustion and partial combustion (more the latter given the ratio of CO:CO2 of 1.7:1) taking place in the ATDU. With 2%-5% O2 in the ATDU this seems to make sense. The flare gas O2 is only around 0.7% by volume, so what little O2 is present in the ATDU is consumed in the oxidation of organics in the ATDU. I do understand – and am not questioning Tradebe's claims – that the primary reaction in the ATDU is pyrolysis, not oxidation-combustion. If it were not, you could not recover the HCs to the degree that you do.

Can you correct me or elaborate?

Also, may I have an idea as to when the questions over the past couple of days can be resolved?

Thank you, Michael



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